

Serial Number 10/752,672

IN THE DRAWINGS

Please amend Fig. 2C by shifting both the thin line and thick line upward, amend Fig. 2D by changing the thin line as a thick line and the thick line as a thin line, and add terms "prior art" and "invention" for the thick lines and thin lines, respectively, in Figs. 2A-2B and amended Figs. 2C-2D.

REMARKS

The drawings have been amended to clarify the difference between the prior art energy profile and that of the present invention. In the amended figures, the thick line indicates the energy profile for the prior art, and the thin line the energy profile of the invention.

Claims 80-109 replace original Claims 1-79. All of the claims now read on the elected species.

Even though the Applicant has made the required election, the restriction requirement is **traversed** insofar as various embodiments have been mis-identified as mutually exclusive “species.”

For example, species a as mentioned on page 3 of the Office Action is actually dependent on species b because the “index difference” of species a is an embodiment of the “structure discontinuity” of species b.

In addition, species BB and CC on said page 4 are actually respectively dependent on species AA. In species AA, the “amplifiers” are embodied as amplifiers 520 in Fig. 5A and amplifiers 562 in Fig. 5B, and the “detectors” as detectors 521-524 in Fig. 5A and detectors 563-566 in Fig. 5B. In species BB, the “at least one electrode” is embodied as electrodes 567-569 in Fig. 5B, and the “external signals” as external signals 587-589 in Fig. 5B. In species CC, the “gain or loss wings” are embodied as wings 554-561 in Fig. 5B, and the “control circuits” as control circuits 583-586 in Fig. 5B, which receive output signals from said detectors 563-566, respectively, and generate said external signals 587-589. As a result, species BB and CC are respectively an embodiment of species AA.

The re-written claims have only one independent claim. The re-written independent Claim 1 includes only one gain medium and has defined the significant arrangement of making the

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whole carrier density distribution of the optical amplifier decline from the input facet to the output facet.

The election of claims is without prejudice. The Applicant reserves the right to file divisional applications directed to any non-elected species.

Having thus complied with the restriction required, early and favorable action on the merits is requested. is requested.

Respectfully submitted,

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